'*Phocea massiliensis*' a new bacterial species isolated from the human gut

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Abstract

We present here the main characteristics of '*Phocea massiliensis*' strain Marseille-P2769^T (CSUR P2769), which is a new genus isolated from the stool of a 45-year-old patient.

Keywords: Culturomics, Genomics, Human-gut, '*Phocea massiliensis*', taxonomy
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In March 2016, as a part of our culturomics studies [1], we isolated from the stool sample of a 45-year-old patient hospitalized for the treatment of a melanoma, a bacterial strain that could not be identified by our systematic matrix-assisted laser desorption–ionization time-of-flight mass spectrometry (MALDI-TOF-MS) screening on a MicroFlex spectrometer (Bruker Daltonics, Bremen, Germany) [2]. This study was approved by the local committee of the IFR48 (Marseille, France) under agreement number 09-022 and the consent of the patient was obtained. The initial growth was observed after the stool sample had been pre-incubated in a blood bottle culture (Becton-Dickinson, Pont de Claix, France), with the addition of 5% sheep rumen for 5 days. Several colonies appeared after 3 days of cultivation on 5% sheep blood agar (bioMérieux, Marcy l'Etoile, France) in anaerobic conditions generated by AnaeroGen™ (bioMérieux). Agar-grown colonies ranged from 1 to 2 mm in diameter and were beige and circular. Bacterial cells were Gram-negative bacilli, strictly anaerobic, motile and non-spore-forming (0.4–0.5 × 2.5–3 µm). Strain Marseille-P2769 was catalase and oxidase negative. As previously described, we sequenced the complete 16S rRNA gene using a 3130-XL sequencer (Applied Biosciences, Saint Aubin, France) with the universal primers FD1 and RP2 (Eurogentec, Angers, France) [3]. Strain Marseille-P2769 exhibited a 92% sequence identity with *Anaerotruncus colihominis* strain JM4-15^T (GenBank accession number KR364734), the phylogenetically closest species with standing in nomenclature. Indeed, with a similarity <95%, strain Marseille-P2769 was putatively classified as a member of a new genus within the family *Ruminococcaceae* in the *Firmicutes* phylum [4].

Anaerotruncus colihominis was isolated from human faeces and was described in 2004 [5]. It was obligatory anaerobic, Gram-positive, non-spore-forming and cells were rods (0.5–2.5 µm). Catalase was not produced.

Strain Marseille-P2769 exhibited a 16S rRNA sequence divergence >5% with its phylogenetically closest species with standing in nomenclature [6], so we propose the creation of the new genus '*Phocea*' gen. nov., (pho.ce.en'sis. L. fem. adj. *phoceensis* referring to Phocea, the Greek name of the city which founded Marseille, where the strain was isolated). Strain Marseille-P2769^T is the type strain of the new species '*Phocea massiliensis*' gen. nov., sp. nov (see Fig. 1).

MALDI-TOF-MS spectrum accession number

The MALDI-TOF-MS spectrum of '*Phocea massiliensis*' is available at http://www.mediterranee-infection.com/article.php?laref=256&titre=urms-database.

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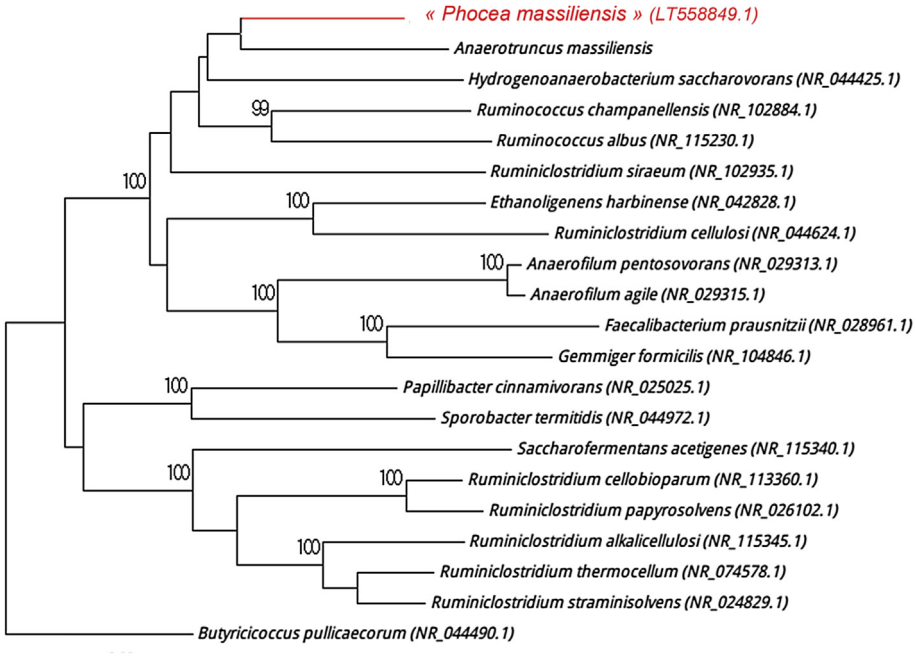

FIG. 1. Phylogenetic tree showing the position of '*Phocea massiliensis*' strain Marseille-P2769^T relative to other phylogenetically close members of the family *Ruminococcaceae*. GenBank accession numbers are indicated in parentheses. Sequences were aligned using CLUSTALW, and phylogenetic inferences were obtained using the maximum-likelihood method within the MEGA software. Numbers at the nodes are percentages of bootstrap values obtained by repeating the analysis 500 times to generate a majority consensus tree. Only values >70% were displayed. The scale bar indicates a 2% nucleotide sequence divergence.

Nucleotide sequence accession number

The 16S rRNA gene sequence of strain Marseille-P2769 was deposited in GenBank under accession number LT558849.

Deposit in a culture collection

Strain Marseille-P2769 was deposited in the Collection de Souches de l'Unité des Rickettsies (CSUR, WDCM 875) under number P2769.

Conflict of Interest

The authors have no conflicts of interest to declare.

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